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EDITORIAL NOTES

WALES AND THE FUTURE

PERHAPS because of the urgency of current problems, perhaps because of far greater appreciation than pre-war that only by the closest working together of all within its ranks can the Industry hope to give of its best and, indeed, do justice to itself, meetings of District Gas Associations have become much more alive. For many obvious reasons they are less leisurely, and it seems to us that they are more realistic. There were two meetings of Associations last week—the Eastern Counties on Wednesday at Cambridge, the Wales and Monmouthshire on the following day at Newport. The President of The Institution of Gas Engineers honoured both occasions, and we, too, were glad to be present at these gatherings of fellow engineers. A report of the Eastern Counties' meeting, of the informal Address given by the Director-General of Gas Supply, and of the Presidential Address of Mr. F. H. Robinson appears on later pages of this issue. Our report of the Wales meeting is deferred till next week for the simple reason that we have not enough paper.

We have just enough space, however, for a few comments here on the Wales meeting, held under the pleasantest of conditions, free from alarms and excursions, in the Council Chamber of Newport's Town Hall, Mr. J. F. Rust, Chief Engineer of the Newport Gas Company, presiding over a "packed house." What is termed "ordinary business" was conducted in the morning, including delivery of the Presidential Address; there was an interval for lunch at which the speeches were commendably brief; then back to the Town Hall for a very strenuous discussion on June, 1941, Institution Communications, the second "mopping-up" by the Association of the Symposium last year (for the first "mopping-up" see "JOURNAL" of Sept. 24, 1941). Main items of the morning session were the best way to apply the Octavius Thomas Memorial Fund, the setting-up of a members' memorial to H. D. Madden, and agreement that there should be Junior representation on the Association Council. Encouragement of the Juniors and their representation on any committee dealing with post-war reconstruction was urged by Mr. Rust in his Address, in which he emphasized the need for formulating a clear-cut policy for the future. Gas, he remarked, on its merits has proved indispensable in the manufacture of engines of war; it should be equally indispensable to industrialists on the return of peace. Peace, however, will bring problems, among which will be the dispersal and new location of industry probably in areas at present supplied by comparatively small undertakings. Our aim must be to put ourselves in a position to supply a standard gas in any quantity and in any district; it is difficult to see how this can possibly be achieved without the establishment of area grids and the linking-up of undertakings. As for the idea of bulk manufacture and distribution, this was hardly novel. A certain versatile man of Monmouthshire, Samuel Baldwin Rogers, in the early years of the nineteenth century advocated with vigour and imagination the supply of gas to the Metropolis—and *en route* through pipes of "various ramifications"—from "central" plants established at Newport and Cardiff. He suggested that a great quantity of gas could be produced from the refuse left at collieries—in which regard, considering conditions of to-day, he showed quite remarkable vision.

There was expression of opinion in plenty and from many angles at the afternoon session, when discussion was concerned with the standardization of coke grades and properties, the co-ordination of the carbonizing industries, post-war development of industrial gas, and education in the Industry. We shall deal with the discussion subsequently, though necessarily in condensed form; but we will mention a few, and a few only, of the views expressed. Reference was made to the relatively low value of South Wales coals for coke making, but it was admitted also that relatively little attempt has in fact been made to market coke at all efficiently; competition from other prepared solid fuels has dimmed rather than whetted enthusiasm—which, of course, is all wrong. Some districts can sell certain grades of coke; others cannot. There is real need for market co-ordination and concerted action; hence the welcome given to the formation of the South Wales District Gas Coke Association. At the same time there was sad indictment against the coal industry that during a period when the nation's need has called for the greatest efficiency in every direction, the production of coal has deteriorated not only in quantity, but also in quality. Supposing the war ended, how long would it take the mining industry to attain once again the standards of, say, 1930? It was argued that coke oven gas must come more into the picture and that in winter the ovens could be heated by producer gas, blue gas, or tar gas, so permitting the supply of coke oven gas to gas undertakings to vary in quantity with the change in the seasons. And in regard to the development of industrial gas it was agreed that a new and far wider outlook must be taken in view of the enormous potential field. It is not a question of what may be in the interests of particular undertakings; it is what is in the interests of the Industry as a whole—and the Industry will have to make up its mind whether it wants to develop into a large-scale fuel industry, as it can so well develop, or whether it will rest content as primarily a domestic load industry. War conditions have demonstrated the demand, though the spadework of the industrial departments of certain undertakings and the effective activities of the Industrial Centres have created the desire for industrial gas and have paved the way to its efficient use. Opportunity is, in fact, hammering at the door. What is to be the response? We hope the Industry will prove equal to what one speaker described as the "overwhelming appreciation" shown by users of the value of industrial gas.

CONFIDENCE AND EFFICIENCY

THE quiet and confident tone of the latest report of the Council of the Society of British Gas Industries (last week's "JOURNAL," p. 281) is significant of the smooth and efficient working of this organization, which throughout the war has proved itself able to anticipate and face difficulties and take them and overcome them in its stride. Fortunately for its members—and its membership now comprises virtually 100% of its effective strength—and the Gas Industry as a whole, the Society, well consolidated in the years immediately preceding the war, has the capacity and capability of planning in advance, and this anticipation is bound to stand the Industry in good stead in post-war years. In point of fact the scope of the Society's activities to-day far exceeds that of pre-war days, and its position is fully established. The immediate problems of the Industry are not light, but it can now look with assurance to the Directorate of Gas Supply for assistance, and the help already afforded by the Directorate since its inception six months

ago is freely and generally recognized and appreciated. The framework for effective action so long desired has been formulated, but, as the S.B.G.I. report so rightly emphasizes—and as the Director-General of Gas Supply has himself frequently and forcefully pointed out—the type of Industry which is to occupy it in the years to come rests not with the Government which created the framework but with the Industry at whose disposal it has been placed. Success depends on individual effort willingly merged into co-operative action. Upon the Industry's own efforts depends the place it will occupy in the national fuel policy of the future. It seems to us obvious that to the total effort the Society is well fitted to add a substantial and effective share. We think, too, that the Society has already done much to convince Government departments that the Industry's expressed desire to co-operate is not just lip service, and that the Industry has something constructive to offer.

To our mind the report is all the more encouraging for its absence of any element of boastfulness. It is a forward-looking report full of promise rather than a tabulation of past achievements; nevertheless these achievements have been real and have paved the path to future work. The report speaks for itself in modest vein, but we would like to underline two of its recordings. First in regard to essential and protected work and reserved occupations. With each of the Government's major steps taken during the past year to harness the productive resources of the country to the national war effort the Society has played its part, and progressively at each stage recognition of the importance of the Gas Industry as a vital industry has been secured. Secondly in connexion with export trade. The Gas and Coke Oven Industries Export Group was formed by the Society in 1940. Internal machinery has been devised for all export licence applications to be handled through the Group. Of course, the circumstances which obtained when the movement was formed have radically changed. Post-war export policy is, however, the subject of study. The conditions which will govern it are purely speculative; but the Group is in existence ready to make proposals for the future and to provide a channel through which policy can be translated into practice. In general, there is no doubt that the Gas Industry should try to assess the probable direction which events will take and be ready to move with them, and if needs be influence them. If in the early future the Industry finds itself incapable of recommending the lines of its own development, then lines will be imposed upon it. There is urgent need for exhaustive examination—for planning, to use a word employed to the point of irritation—and this the Society realizes and is acting accordingly. Its counsels will prove valuable.

EXPERIENCE AS A GUIDE

THERE have of late been several technical contributions of merit to which we should have been glad, had conditions permitted, to devote more space in the "JOURNAL." As circumstances are, our abstracting has had to be severe and we have had to discriminate and condense, though we have reason to believe that our exercises in the interests of brevity have appealed to readers if not invariably to authors, who have, however, been ready enough to understand the limitations, restrictions, and impositions under which we go to press week by week. One of such contributions was that abstracted in the "JOURNAL" of April 29 and May 6 on "Gas Distribution." It was a Paper given to the Coke Oven Managers' Association by Mr. W. Hodkinson, General Manager, and Mr. H. B. Taylor, Chief Engineer, of the West Yorkshire Gas Distribution Company. It was full of facts and figures based on experience of high pressure gas distribution on a large scale, and of topical interest and importance in view of the consideration which is being given to regional planning and schemes of co-ordination in the Gas Industry. It should prove a valuable help and guide in translating general ideas on regional gas supply planning into concrete proposals for regional co-ordinated gas service. What the Authors endeavoured to substantiate by operational information is that the needs of the Industry can best be satisfied by re-organization into large manufacturing units, and the adoption of high pressure distribution over much wider areas than has hitherto been considered possible. We regard this trend as inevitable—the development of the carbonizing industry into a highly skilled chemical industry and the bulk distribution of gas.

As is common knowledge, the Company is a subsidiary of the United Kingdom Gas Corporation. Owing to opposition the area of supply was restricted to the 1938 limits of supply of the undertakings controlled by U.K. The war interfered with its full development, but the system is extensive and embraces both industrial and rural areas; the mains vary from 4 in. to 18 in. (of a size sufficient to serve as the nucleus of a future regional grid); the initial pressure provided for is 35 lb. per sq .in.; only purified gas is distributed. The importance of the information presented is too apparent to need emphasis. Over a large area of supply standardization of calorific value (500 B.Th.U.) has been achieved; efficient drying of the gas is attained through compression with after cooling. At one of the coke ovens extraction of sulphur compounds by oil washing under pressure (30 lb. per sq. in.) gives a gas containing only 4–4½ grains of sulphur per 100 cu.ft. Such facts demand consideration on broad—not parochial—lines.

We become more and more impressed with the demand for gas which exists and which could not be supplied by present gas systems, and the confidence shown in the Paper under discussion appeals to us. Estimation of future loads was made after survey. A survey of twelve undertakings which made in 1936 850 million cu.ft. showed a potential industrial demand of 3,650 million cu.ft. Main sizes were calculated to handle 5,350 million cu.ft., representing a potential expansion of more than 600%. It is on such lines, we suggest, that the Industry should think. It is not fantastic. In a number of undertakings covered by the West Yorkshire scheme there have been increases of 100% a year. In one undertaking for which full figures were set out sales increased in three years by 60% and the consumption per domestic consumer steadily increased. The authors visualize manufacturing works planned in units of 5 or 10 million cu.ft. per day capacity. With a regional grid surplus plant capacity could be reduced to a minimum, an area for the moment short of gas taking part supplies from an area having surplus plant: and they suggested that the additional cost of distribution with a regional grid should be considered as a manufacturing charge. Only if investigation proved that manufacturing economics offset the additional distribution charges should the local grids be merged into a regional grid. It is a question of balance, but underlying all there should be appreciation of the demand which exists and which the Gas Industry should set itself out to satisfy. The interests of the Gas Industry should be placed well in front of the interests of any one individual gas undertaking.

Repairs and Reconstruction

We have been glad to publish ("JOURNAL" of May 13 and 20) a short account of an organization put into operation by the United Kingdom Gas Corporation to assist its constituent companies to make their fullest contribution to the war effort by keeping pace with works repairs and undertaking necessary reconstruction. This organization—it is quite a simple one—was described in a Paper by Mr. F. Litler to the Manchester Juniors, and it was designed to minimize the effects of decreasing labour supply, decreased output of new plant, inability of contractors to cope with increased demand for repair work, and damage to plant by attacks from the air. The constituent undertakings have derived many advantages. Greater use has been made of available surplus plant, more essential repair and reconstruction work has been carried out than would otherwise have been possible, new and increased demands for gas have been more easily met, and resources for dealing with air raid damage have been considerably augmented. The Paper was a story of a great deal of useful work accomplished by a very limited personnel, and the Author gave full marks to the makers of plant and, indeed, all contractors, who had invariably co-operated to the fullest extent.

Personal

Mr. WILLIAM CASH has resigned from the B.C.G.A. after being a member of the Association since its early days. He was President in 1932–33.

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Mr. G. LE B. DIAMOND, Engineer and Manager of the Rochester, Chatham, and Gillingham Gas Company, has been appointed Deputy Fuel and Power Controller for the South-Eastern Region.

* * *

Mr. HENRY LESSER, O.B.E., LL.B., Service Secretary of the South Metropolitan Gas Company, was elected Master of the Worshipful Company of Turners on May 14.

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Mr. WILFRID HAWORTH, Engineer and Manager of the East Dereham U.D. Council Gas and Water Departments for the past three and a half years has been appointed to the position of Gas and Water Engineer of the New Mills U.D. Council.

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Mr. A. JARMAN, District Superintendent of the Sittingbourne Gas Company since 1912, who is to retire in the near future with 43 years' service, was recently presented with an eight-day clock as a memento of his service. The presentation was made by the Chairman of the Company, Sir David Milne-Watson.

Eastern Counties Gas Engineers' and Managers' Association

The 101st Half-Yearly Meeting was held at Cambridge on May 20, the President, Mr. F. H. ROBINSON, Assoc.M.Inst.C.E., Bishop's Stortford, presiding over an attendance of between 70 and 80 members.

The President announced that one of their Associates, Mr. B. B. Waller, who had long been connected with the Industry, had recently passed away, and the members stood as a tribute of respect.

The President then presented Colonel J. Kennington with the Association's Medal in commemoration of his three years' Presidency (1939, 1940, and 1941). Colonel Kennington, he said, had the longest record of any President of the Association, and the Committee had therefore felt that some further token should be handed to him. Mr. Troughton, who would make the presentation, was the father of the Association, having been a member for 51 years, and he was still in office.

Mr. J. H. TROUGHTON (Newmarket), in presenting Colonel Kennington with a silver cigarette casket, said the members knew how excellently he had done his work and kept the flag flying through the perils and dangers of the war, and some of them knew what those perils had been in the Eastern Counties.

Colonel KENNINGTON expressed his thanks.

On the motion of Mr. H. R. WIMHURST (Bury St. Edmunds), seconded by Mr. C. R. FOWLER (Leiston), the following new members were elected: Mr. K. B. Meggitt (Bedford), Mr. A. W. Mather (Ipswich), Mr. R. J. Gavin (Royston), and Mr. T. C. Battersby (Watford). Mr. H. W. Barnes (London) was elected an Associate Member.

Sir FREDERICK WEST, President of The Institution of Gas Engineers, commenting on the Committee's recommendation to contribute £25 to the Institution Benevolent Fund for the second year in succession, said that from his experience on the Council and as President he had a great admiration for the work of the Fund, and he suggested that everybody should become subscribers. He also urged as many as possible to sign the deed of covenant, under which it was possible for the Fund, in effect, to double the contributions by means of recovering income tax at the current rate of 10s. in the pound.

After Mr. Troughton had proposed a contribution of £25, Mr. W. C. CHAPMAN (Boston) proposed that the amount should be increased to £30. Mr. Troughton withdrew his motion in favour of Mr. Chapman's, Mr. G. WRIGHT (Lincoln) seconded the increased amount, and it was unanimously approved.

Mr. ROBINSON then delivered his Presidential Address (reported on pp. 322, 327). Referring to his appreciation of the kindness of his Directors in allowing him to accept the Presidency, Mr. Robinson said he was specially honoured by the presence of Captain J. M. Donaldson, M.C., Assistant Managing Director of his Company.

Mr. J. HUNTER RIOCH (Cambridge), proposing a vote of thanks for the Address, said it had inspired them all, and he believed they would take it home and read it over many times. It was the work of a gas engineer who knew his work from A to Z. He suggested particularly that Dr. E. W. Smith would appreciate the views on post-war planning.

Mr. G. B. L. WILSON (King's Lynn) seconded and the PRESIDENT, in acknowledgment, expressed appreciation of Mr. Rioch's co-operation in arranging the meeting at Cambridge.

Dr. E. W. SMITH, C.B.E., Director-General of Gas Supply, then gave an informal address (summarized on p. 321) and the President invited full and frank discussion in private. There were only two speakers, however, Sir Frederick West and Mr. R. Prince (Peterborough).

The meeting was preceded by a luncheon at the University Arms Hotel at which the members were the guests of the Chairman and Directors of the Bishop's Stortford Gas Company. Capt. J. M. Donaldson, Assistant Managing Director, who presided, proposed the toast of "The Visitors," and coupled with it the names of Sir Will Spens and Sir Frederick West.

Sir WILL SPENS, Regional Commissioner, responding, said that recent experiences had demonstrated the importance of the restoration of gas supplies after raids, and he expressed his admiration for the arrangements which had been made by Mr. Hunter Rioch and his Committee for co-operation between the different gas undertakings, and for the work done by those undertakings in implementing such arrangements. Another thing with which the Regional Commissioner was less directly concerned was the problem of their supplies; he was glad that Mr. Warrender (Regional Liaison Officer) was looking after their common interests. "My guess," concluded Sir Will Spens, "is that so far as industry is concerned we are going to be dependent upon you to an extent altogether beyond anything in the past, and that is saying a great deal."

Sir FREDERICK WEST, also replying, expressed the good wishes of The Institution of Gas Engineers. One of the subjects they had had under discussion in the past year had been how to bring about closer liaison and closer understanding between the districts and the parent body, and they had decided, following each Council meeting, to issue to the district representatives a short précis of the subjects under discussion, with the suggestion that at least once a year the District Associations should have on their agenda Institution matters, and refer to some of the problems discussed from time to time.

On the motion of Mr. L. C. B. WILLIAMS (Thetford), seconded by Mr. W. J. C. GARRARD (Ipswich), a vote of thanks was accorded to the Directors of the Bishop's Stortford Gas Company for their hospitality.

Letter to the Editor

"Vested Interests" on Fuel Rationing

SIR,—The Official Report dated May 7 on the House of Commons Debate on Fuel Rationing records that in the course of his contribution to the discussion Mr. Arthur Greenwood said " there has been what I can only describe as a deliberate campaign by vested interests"; he then went on to add "in other words, the hand of vested interests is at work now. For what purpose? Nor primarily in the public interest, but with a view to protecting selfish interests." He then alleged that these vested interests "fall into three main groups—the gas industry, the electricity industry and the coalowners."

This is a serious allegation, and so far as the Gas and Electricity Supply Industries are concerned, we refute in the strongest terms possible that there has been or that there is any organized campaign against the adoption of any means that will result in reducing the consumption of gas and electricity.

The signatories are representative of all branches of the Industries, *i.e.*, municipal, joint electricity authorities, and public companies, and we write you with full authority to contradict Mr. Greenwood's accusation.

These Industries have for a long time recognized that the consumption of gas and electricity for non-essential purposes must be reduced, and we have urged our consumers by advertisements and by circulars to restrict their consumption, and we have been in constant touch with the Government Departments endeavouring to devise methods for achieving the desired economy by voluntary methods. We have made it quite clear that if the Government decide to impose the Beveridge Scheme, we will do our utmost to make it a success, and Sir William Beveridge acknowledged this in his report in the following words:

> "The representatives of suppliers, while they were anxious to avoid rationing if possible, and emphasized the difficulties of any scheme as a ground for preferring the alternative of increased production, emphasized also their readiness to co-operate wholeheartedly in the scheme, should rationing be decided on by the Government."

It is useless therefore and quite false to say that vested interests are at work in the sinister and unpatriotic way suggested.

Yours faithfully,

THE JOINT COMMITTEE OF ELECTRICITY SUPPLY ASSOCIATIONS;
S. E. MONKHOUSE, Chairman.

THE NATIONAL GAS COUNCIL OF GREAT GRITAIN AND IRELAND;
D. MILNE-WATSON, Chairman.

[In last week's issue we commented on this matter, but we are pleased to have the opportunity of publishing the full text of the letter of protest. We learn that it was sent out to six of the leading London morning papers. Only one of these, *The Times*, used the material, and then only in the shape of a short paragraph headed "Vested Interests," though the subject matter was touched upon in a *Daily Telegraph* leader.—ED., "G.J."]

The fact that goods made of raw materials in short supply owing to war conditions are advertised in the "Journal" should not be taken as an indication that they are necessarily available for export.

POST-WAR HOUSING

Constructive views on the Gas Industry *vis-à-vis* post-war conditions are needed. We therefore welcome the following contribution, which is by Thomas Potterton (Heating Engineers), Ltd. It concerns itself with the possibilities of gas and coke in housing having as a main element of design conservation of fuel, the approach being on broad lines. The suggestions put forward should interest the architect as well as the Gas Industry—and closer co-operation between the two is not only desirable, but the only way to the maximum improvement in housing and the provision of warmth and comfort economically and healthily.

THE more post-war housing is considered from the gas point of view, the more it becomes obvious that the wider view must be taken and housing be considered generally, so that design shall be such that full advantage can be taken of the many facilities gas can offer. Indeed, the people's attitude to housing and their mode of living will need to be adjusted if full advantage is to be taken of the modern trend of economic and healthy housing conditions. General economy will doubtless be forced on the impoverished country if our old financial standing is to be regained, and not least among this will come economy in fuel, as a national asset.

Housing must, therefore, be such that comfortable and healthy conditions can be attained with the minimum fuel consumption, while there must of necessity be a large variety of principles in design to meet the various income and family groups that have to be catered for. Labour saving will loom largely in the public eye, and where estates, terraces, blocks of flats, or other such buildings are erected for letting purposes, the central boiler plant with constant heating and hot water as part of the facilities included in the rent will have a great advantage over a very large range of rental values.

There is, however, an economic limit to such large scale heating, particularly in housing estates where a large area is covered, and any such schemes should not approach "district heating" in which the disadvantage of heat losses outweigh the advantages, unless the heat utilized initially would otherwise be wasted and can therefore be obtained without cost and without additional fuel. Coke as a fuel would do much to meet this demand, being both smokeless and low in cost, but labour in stoking may offer difficulties where the housing estate is not of sufficient size to warrant constant full time attention. In such case gas undertakings could meet a large demand by providing a "stoking service" at a fixed charge either for labour only, the property owner paying for fuel used, or by a fixed charge for labour and fuel to maintain a given average degree in either the heating or hot water supply at stated periods.

The situation of the boiler chamber or a number of boiler chambers in a housing estate is difficult to allocate without detriment to adjacent premises, and complaints of constant deliveries of coke and clearing of ash are possible, and gas-fired boilers will often meet the case economically if full advantage is taken of automatic controls both in regard to water temperature and the times the services are available. In this respect it would be suggested that hot water would be available only during the day periods, thus reducing heat losses to a volume comparable with the losses in systems serving individual houses.

Since the last War there has been an enormous increase in the number of owner tenants, this being all to the good, and as purchase will be made even more easy without capital the system is likely to be extended. This does not entirely rule out the foregoing principles, and progressive councils may be found to give such heating services and charge on a percentage on the rates for such houses, particularly where the gas undertakings are municipally owned.

In practically all cases the temperature would be such as has become known as background heating, and radiant heat from a gas or electric fire would be complementary, entirely dispensing with chimneys in the houses, but making an incinerator in the heating chamber desirable.

In houses that have to be considered individually, the design of the building should be such that no part or parts of the house need be shut up for the winter owing to the lack of heat or the necessity of maintaining additional fires. A step was taken in this direction after the last War when the living room took the place of the dining room in so many houses, and the kitchen was put to its correct use as the housewife's workshop wherein the daily tasks can be fulfilled.

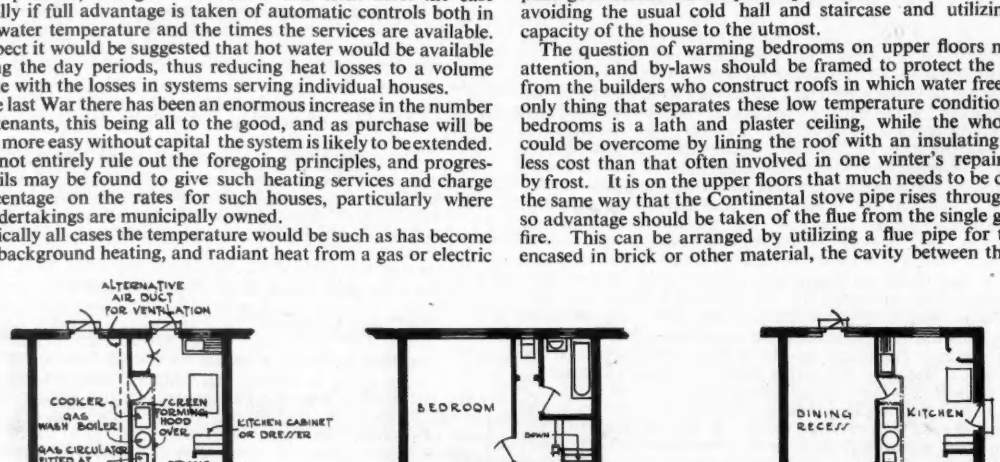
Chimneys are, however, still all too frequent, taking up valuable space in the rooms by large chimney breasts, and some discharging smoke to pollute the external atmosphere, while 50% of such chimneys are never or very rarely used. In countries where more severe weather is experienced, it has been imperative to deal drastically with the question, and one can continually hear it quoted that Continental or Colonial houses are heated better than ours. A strong point was made at a recent meeting of the Royal Society of Arts in regard to the higher temperature of German houses with colder weather conditions and a much lower fuel consumption per head of population. This can be attributed to what may be called the single fire system and the use of slow combustion stoves with long heating flues that have a much higher efficiency than our own open fires and brick chimneys, and there is no doubt we have to get back to this system in principle, but without the many crude and unsightly features.

In the four or five roomed house there appears no necessity for a separate sitting room such as that usually referred to as either "drawing room" or "lounge," which is very rarely used, or if used on special days meals are taken therein because the "dining room" is cold.

Many luxury flats at high rentals have shown the way in this respect, and the large living room with a dining recess gives all the facilities for appropriate furnishing of both parts of the room, and, being of similar temperature, full use is taken of the space available, and the labour involved is at a minimum.

Accompanying is a plan of a typical house showing this construction —that is, first the ground floor incorporates only one room fulfilling the role of lounge and dining recess, while the alternative ground floor plan goes further and opens up the staircase to the lounge, thus avoiding the usual cold hall and staircase and utilizing the cubic capacity of the house to the utmost.

The question of warming bedrooms on upper floors needs urgent attention, and by-laws should be framed to protect the householder from the builders who construct roofs in which water freezes, and the only thing that separates these low temperature conditions from the bedrooms is a lath and plaster ceiling, while the whole difficulty could be overcome by lining the roof with an insulating material at less cost than that often involved in one winter's repair to damage by frost. It is on the upper floors that much needs to be done, and in the same way that the Continental stove pipe rises through the house, so advantage should be taken of the flue from the single ground floor fire. This can be arranged by utilizing a flue pipe for the chimney encased in brick or other material, the cavity between the two being



Ground Floor. *1st Floor.* *Alternative Ground Floor with side entrance.*

FIG. 1.—*Suggestion for small house with all parts warmed from one central fire and ventilated gas-fired equipment for kitchen.*

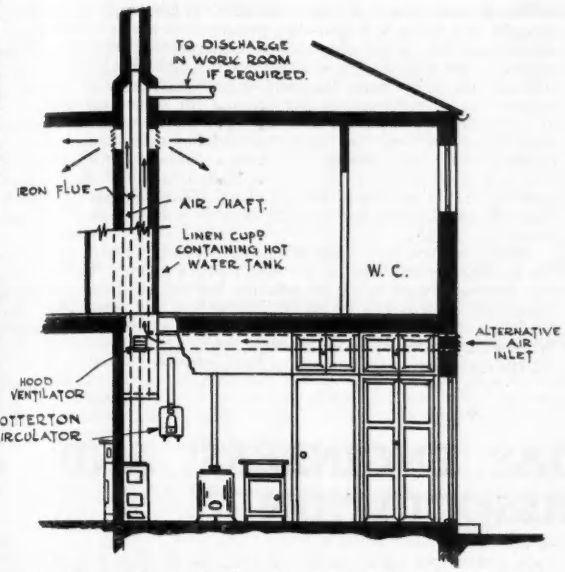


FIG. 2.—*Section through kitchen showing construction of flue and ventilation with F.A.I. at high level.*

an air heating chamber discharging warmed air into bedrooms in suitable positions, the air being taken from the room below or externally.

Such an arrangement would raise the efficiency of our fires from their present low standard to something approaching the efficiency of those abroad, and the use of coke grates would provide constant heat at low cost and reduce pollution of the atmosphere to a minimum. Such a system lends itself to many forms of elaboration, and the greatest advantage would be obtained from closed stoves, which have a much higher flue temperature than the open fire, which admits free air to the chimney, giving much more ventilating than necessary and causing cold draughts from doors and windows.

The plan shows a method whereby a specially constructed stove is practically in the centre of the house, giving warmth where it is required in both parts of the living room, also giving facilities for stoking from the kitchen so that no fuel or ash dust enters the living room.

If ventilation is required in the living room, this could be obtained by a controlled inlet from the warm ventilating shaft outside the flue pipe, but generally this discharge of warm air would be of more service in the rooms on the first floor, or with specially constructed vent shafts the whole of the air heated by the sides and back of the stove could be diverted from the usual grids on the ground floor to the air shaft and used on the upper floor; this would be of particular value during the night period.

The arrangement of the kitchen equipment is, of course, a matter of first importance, but, having an adjacent flue, full advantage should be taken of ventilating to take away vapour and smells of cooking. If the kitchen is to be the full workshop, it must be of reasonable size capable of containing a table that is not just a hinged flap on the wall, and a cupboard or a closed dresser capable of storing all the requisite china and sundry kitchen equipment. In addition a good sized deep sink with draining board and the cooker are necessities.

Since economy is an essential feature of so many lives much of the laundry must be done at home, and a wash boiler should be part of the equipment. It will be agreed by the majority of housewives that washing is not the real difficulty; the hardship of laundry work generally is drying, and the addition of a gas-fired drying cupboard that would dry clothes in a quick and hygienic manner would be a boon not only to the housewife, but to the keen gardener and the neighbours who object to the old-fashioned clothes line. A specially designed gas-fired cupboard is a simple matter and could be vented into the hood effectively.

For hot water supply the gas-fired circulator gives every facility that can be required. In many simple systems the hot water storage tank can be fitted in a cupboard for linen on the first floor, and if an open coke fire is used in the living room a back boiler can be applied to heat the same storage and to give the fire a useful duty when the room is not in use. Towel rails for bath rooms can be added, and in a well constructed and insulated system the cost in excess of solid fuel is small in comparison with cleanliness maintained and labour saved.

THE DIRECTOR-GENERAL MEETS THE EASTERN COUNTIES ASSOCIATION

Dr. E. W. Smith, C.B.E., Director-General of Gas Supply, had a cordial welcome from the members of the Eastern Counties Gas Engineers' and Managers' Association when he gave an informal Address at their meeting at Cambridge on May 20. He told them much that he had already told the members of other District Associations, and gave them some new facts. He has proved the truth of the saying that all that an Englishman—or a Scotsman—wants is to be told what to do and he will do it. As an instance he mentioned a big industrial area where production was down temporarily because of a shortage of gas in the depth of winter. Through the collaboration of gas engineers, coke oven managers, and industrialists, the problem was solved within three or four days, and it would not have been possible but for the complete flexibility and lack of "stickiness" on the part of all concerned. The solution of such a problem was a credit to British Industry.

He spoke of half a dozen undertakings still arguing whether or not to wash for benzole, and whether it means a profit of a few pounds or a few thousand pounds. They are only a small fraction of the Industry, but it is that small fraction that affects the tone of the Industry from the point of view of the general public. He hoped those few undertakings would come into line. He could assure them that if they had any worries about being short of gas his Department would support them on all occasions, because gas supply comes first, and there is always the knowledge that if ever there should be a shortage of gas, permission can be given to cease washing for benzole.

Dr. Smith appealed to gas engineers not to be "sticky" in the things they are requested to do. The great majority have fallen in wonderfully, and he regards the action of the Midland Association in getting together what he called its "Self Help Panels" as an extremely good example of co-operative work for the Industry and for the nation.

The present situation in which the major bulk of munition supplies in all directions is dependent on gas supplies, and would be even more so if the gas were available, "puts the ball at our feet." Whereas in the last war the Industry tried to sell all the gas it could irrespective of almost any other consideration, to-day it is trying to save all the gas it can and to discourage consumption in most districts, and it is essential that there should be a real effort to encourage economy, by seeing that the gas is burnt properly and that there is a minimum of waste.

At one time grandiose schemes were proposed for large extensions of plant and big distribution systems that would have taken years to complete, and it was put to those who were responsible that all the gas could be got that was wanted if only care was taken in the way in which it was used, and there has now been created a system of what is known as "gas chasers," and reports and returns already received show that in many towns and cities which are large users of industrial gas, savings have ranged from 10% to 30%, due to care being taken in utilization.

Dr. Smith had nothing to say about rationing because he knew nothing more about it than his audience and had had no contact with it. But it is certain, he said, that there will have to be a saving of coal, and it is for those who have the responsibility to devise the best means. When those means are devised it is for the Industry to help, in seeing that they are carried out as efficiently as possible. He is quite sure the Gas Industry can be counted on to help to carry them out even though it may disagree and think the arrangements are not likely to bring about the desired results, or even think they are impracticable. One might have hoped there was enough ingenuity and enterprise within the Industry to have seen the red light months ago and to have devised educational schemes of a type which progressive industrial concerns could devise, which would have caused the consumer to use less gas. There might, indeed, have been a Gas Industry Committee that would have collaborated with the districts in some properly co-ordinated educational campaign.

If ever there was an opportunity of getting the goodwill of the public and of the Government, there was the opportunity of doing this thing before being compelled to do it. It is not enough to put little tabs on gas bills, or notices on the hoardings; that is not education, it is propaganda; it is to be hoped that something will be done on sound educational lines.

The Future

The experience gained during the war in the use of gas is going to be such that after the war we shall be in a much better position than we were before. Gas is appreciated to-day. Through the Heat Supplies Committee hundreds of producers have been installed to

take the place of gas, and the use of oil and other alternatives has been advocated in places where there has been a shortage of gas, and Dr. Smith has not met a single concern that would not be eager to get back to gas after the war. Their experience of the inconvenience of the other methods would be such that the post-war drop in gas demand would not be so great as might have been anticipated.

One of the ways in which the Industry has made a good showing has been through the activities of the gas engineering advisers. There has been nothing better done in the Industry than the way in which they have got their arrangements through in preparation for eventualities.

Dr. Smith's last point was post-war planning, and here he congratulated Mr. F. H. Robinson on the extremely useful references he had made to the subject in his Presidential Address. Speaking as a member of the Industry and not as Director-General, he felt that the first need was for an organization within the Industry representing all the undertakings, that could speak authoritatively for all undertakings, whether regional or national. They would need to consider the relationship between the various Associations, but that would not be enough. In his view it would not be sufficient just to juggle responsibilities between one body and another. There ought to be a body brought into being with first-class personnel as executive officers that could speak for the Industry—for the undertakings. Having travelled among all the District Associations and discussed the problems of the Industry probably more than any other individual in the last 12 months, he is impressed by the demand for something along those lines that seems general on all sides. The matter ought to be looked into *de novo* without any reference to what exists to-day. If it is necessary to scrap anything, then scrap it and start afresh, but in his view it is not possible to do it if the matter is left to the recognized channels. It is necessary that the District Associations should think about the matter and put up their proposals as to how the problem should be tackled.

"Whatever you do," concluded Dr. Smith, "let us have unity. Let us consider and discuss all these matters coolly. Let us assume that everyone is out to do his best for the Industry; however wrong-headed some ideas may be let us discuss them and argue about them, but let us appreciate that there are all kinds of interests to be satisfied. While we try to satisfy those interests there is only one that matters in the end, and that is the interest of the consumer."

EASTERN COUNTIES GAS ENGINEERS' AND MANAGERS' ASSOCIATION

Presidential Address*

of

FRANK H. ROBINSON,

Bishop's Stortford

WE have become specialists, and it is only by getting out of the rut and seeking knowledge outside his own immediate job that a young engineer can be fully qualified. The course of study now prescribed by The Institution of Gas Engineers covers a wide field, probably wider than is the case with kindred engineering institutions, as the gas engineer of to-day must be trained both as an engineer and a chemist. When he is put in charge of an undertaking of large or medium size, he is expected to be a civil engineer, mechanical engineer, gas engineer, chemist, administrator, commercial manager, accountant and salesman all rolled into one, but his remuneration is sometimes not commensurate with the requirements.

The examination system covers the theoretical side of a gas engineer's training, but the practical side is, of course, equally important if he is to make a successful engineer and manager.

The opportunities for practical training vary considerably, and speaking from my own experience a young engineer in a medium-sized undertaking stands a much better chance of acquiring an all-round knowledge of his job than one in a large undertaking where, due to the organization of the concern into departments, the same opportunities of making close contact with every side of the business are not available.

Capital Expenditure

On wise capital expenditure depends much of the success of an undertaking. There are not a few undertakings suffering from over capitalization which may be due to several causes for some of which the engineer may not be responsible. A few causes are: Plant greatly in excess of requirements; works laid out without sufficient foresight, thus resulting in excessive expenditure during reconstruction; insufficient examination of the merits or otherwise of alternative schemes to the one favoured; extensive areas of supply sparsely populated; watered capital; short-sighted opposition of local authorities to companies' applications for Parliamentary powers, often resulting in irksome and costly restrictions to the rightful activities of the companies concerned. Some local authority undertakings, in spite of the benefit they enjoy of being able to write off capital, are still saddled with high capital charges because, in the past, the local gas company concerns have been purchased too dearly.

In these days with the high cost of plant, mains, &c., and the higher return required on investments, it is more than ever necessary to watch capital expenditure. It is not always the most obvious course that should be followed. Take the case of carbonizing plant, the most important part of a gas-works. Whereas forty years ago the choice was limited to direct fired, generator and regenerator horizontals, with or without machine charging, and inclines, we have now, in addition, several systems of vertical retorts or chambers. It does not follow that the latter, being the newest, are necessarily the best to install under all conditions. One sometimes sees quite small works with an up-to-date continuous vertical installation with all its attendant machinery, and yet no mechanics' shop or skilled mechanic to carry out the repairs which come along a few years after the plant is installed. Such a plant looks attractive when new, but the time will arrive when extensive repairs are required and there is no money and no skilled labour to carry them out, while the undertaking has in the meantime been saddled with increased capital charges which may, but, most likely, may not have been met by the more economical working of the plant.

Sometimes, in small works, the units are too large, resulting in, perhaps, one-third of the plant being shut down for scurfing during the summer period with consequent loss of efficiency.

Then there is the question of straight coal gas *versus* water gas. There are so many points to consider before deciding to extend the plant for the one process or the other that the problem cannot be solved on operating costs alone. Water gas is usually more costly to produce than coal gas in spite of the high price of coal, but local circumstances may make it more economical, having regard to capital charges, to increase the production of water gas rather than incur additional capital expenditure on new coal gas plant which would raise the capital charges, provided, of course, that the existing coal gas plant is capable of providing the basic load.

In other words, up to an optimum percentage of water gas, the higher costs of manufacture would be less than the increased capital charges on new carbonizing plant.

The prices of coal, coke, and oil, and constructional work will determine this optimum point.

The nett cost into holders would be increased, but the all-in cost including interest on capital might be less than if the whole load were carried by the larger coal gas plant.

This must not be taken as an argument in favour of a high percentage of water gas. It also brings in the question of the carrying capacity of mains as the higher specific gravity of carburetted water gas means a lower discharge. We find that 30% of carburetted water gas increases the specific gravity 10% or more over straight coal gas.

Local conditions, especially in regard to capital expenditure, will determine how far one should go. I am afraid there is a tendency at times to play the game of "follow my leader" and be in the fashion by installing the newest and more expensive plant rather than examine all points. In some cases it may be found that simpler and less expensive (though slightly less efficient) plants will in the end be the best for the undertaking concerned.

Post-War Planning

The existence of so many small inefficient undertakings without adequate financial and technical resources is a weakness to the Industry. They cannot give the service to their consumers which is necessary and desirable nor can they utilize the coal they carbonize to the best advantage. If it is not possible to supply them under high pressure from a larger works, the better technical resources and organization of the larger concern should be at their disposal.

I do not for one moment suggest that only the largest works should be allowed to continue to function to the exclusion of medium-sized works, as it by no means follows that the former are necessarily the most efficient. There are many of medium size which can give a lead to other much larger works, but I do contend that very small ones are incapable of giving the efficient service which is so necessary in these times.

The position now is unsatisfactory, as many will admit. Take the area covered by our Association as an example, omitting Nottinghamshire and Northamptonshire. In this area one holding Company, the British Gas Light Company, controls, in groups for the most part, 25 undertakings of various sizes out of the total number of 110 under-

* Delivered at Cambridge, May 20.

takings. These 110 undertakings can be put under the following headings:

Local Authorities	14
Statutory Companies	22
Non-Statutory Companies and Privately Owned	42
Controlled (by 5 Holding Companies)	32
	110

Thus there are 83 authorities in control of the gas supply in the Eastern Counties alone, with manufacturing units ranging from 2 to over 5,000 million cu.ft. a year. By regional planning these 110 undertakings could be controlled from four centres at the most, Norwich, Cambridge, Lincoln, and Ipswich, each with so many sub-stations, the small works being closed down wherever possible.

To take this a stage further, England and Wales could be divided up into 24 administrative areas, each containing groups of undertakings under the control of a central regional office easy of access. Co-ordination and a common policy for the district would then be possible instead of each little urban council or local board of directors working on independent lines with neighbouring undertakings probably pulling different ways.

With such regional grouping the local contact could still be preserved, while the official on the spot would feel that he had the backing of a concern with ample technical and financial resources to help him with any problem he had to face.

In recent years we have seen the formation of several holding companies controlling individual undertakings in various parts of the country. The idea of grouping undertakings by districts with local control and centralized manufacturing stations is all to the good if the local contact is maintained, but I have some misgivings as to whether it will be ultimately beneficial to the Industry and the public for holding companies to have control of widely scattered undertakings of small capacity. The lists of undertakings controlled by these holding companies reveal that, in nearly all of them, while their chief interests are in one area, they also control isolated little concerns 150 to 200 miles away.

If you take a map of England and Wales and mark out the position of the central administrative offices of these holding companies and from them draw lines to their respective undertakings you will find these lines of control crossing each other all over the country in a most complicated and, I would say, illogical manner. Mixed in this tangled skein are the numerous independent undertakings, each of them working according to its own ideas, showing an entire lack of co-ordination and national organization.

If the Industry is to be in a good position to deal with post-war problems, this tangled skein will have to be unravelled.

On the other hand, to have an unwieldy number of undertakings under the control of one central authority is no criterion of efficiency. Grouping in districts where there is a common trade interest or the like, with district administration and the preservation of local contacts, can be beneficial, but any organization going beyond this and tending to over-centralization with large or scattered areas may be found harmful and much of the flexibility which is so important will be lost. The policy of London is not necessarily the right one for the North, or that of Manchester for South Wales.

Future Developments

New uses for gas as a fuel and for its by-products of manufacture are continually being found, and in spite of severe competition progress is still being made, while the Industry is more than ever a necessity in the life of the Nation both in peace and war. We should therefore put our house in order by reorganization and co-ordinated effort so that we can develop to the full new ideas as they come along.

The question of the complete gasification of coal is frequently being brought up and advocated by a few. Some of the older members might recall the descriptions of a complete gasification plant which I worked at Harrogate for seven years prior to 1927. This was used as a diluent for the rich coal gas produced by the vertical and horizontal retorts. When working to a balance so that the whole of the coke produced was gasified, a gas having a calorific value of approximately 370 B.Th.U. was produced. Other experimenters have found the same. Before such a gas could be generally distributed, radical alterations would be needed to gas appliances, and district pressures greatly increased, involving the more extended use of compressors or boosters. There is no practical reason why this should not be done, but apparently the time is not ripe for the change. The chief point to my mind is whether the complete gasification of coal and the general distribution of gas of 370 B.Th.U. can be carried out at a lower cost per therm than the richer gas usually supplied to-day. Price of coal, oil, coke, tar, &c., labour charges and local conditions would determine this.

We have recently had put before us, as the result of careful research, interesting descriptions of methods for the production of high grade gas from complete gasification under pressure which seem to pave the way for the synthetic production of town gas on a commercial basis.

We have still to rely on an organic substance like coal or oil for the carbon element, but the hydrogen and oxygen elements are available everywhere as water. When we to-day can produce synthetically ammonia and its compounds, and oils, petrol, &c., direct from coal by hydrogenation without previous carbonization, it may be that in the future we may see the production of town gas by similar methods and our gas producing plants will be very different to the present types, but until these new methods result in a cheaper therm being supplied to the consumers we shall have to continue producing both gaseous and solid fuel.

The use of gas for large central heating systems, furnaces and metallurgical work has of late years been developed extensively in a way that engineers of less than a generation ago would scarcely have imagined. The extended use of gas in industry necessitates the production of a gaseous therm as cheaply as possible and we must hope that recent research is leading in that direction.

Modern appliances are ready to receive such gas if we can make it. Special tariffs are available in many cases which meet the position to a large extent, but the general cost of production by present-day methods stands in the way of a low priced therm for all.

The price of gas is kept down to a reasonable level by the good return obtained from coke, which is a popular and efficient fuel for many purposes. The London and Counties Coke Association and its Allied Associations have done and are doing splendid work in educating both producers and consumers, but until we are in a position to produce a gaseous therm as cheaply as a solid fuel therm, I am afraid we shall have to continue to produce coke.

When this war is over we shall have had many lessons taught us, and if we only profit by them, put our Industry on a sound basis and continue looking forward, the future is well assured.

The appointment of Dr. E. W. Smith and his team of gas experts to the Board of Trade to deal with gas matters is a welcome sign that the Government has at last come to recognize that the Gas Industry is of national importance, and in making our plans for the future, we must be ready and willing to give all assistance possible to the Director-General of Gas Supply, as he and his team are anxious to do to us. Much good can come of such co-operation between Government and Industry.

Our local prejudices must give way to larger ideas. Changes in the distribution of the population and in the habits of the people are bound to result from this upheaval, and we must be ready to keep pace with them and even anticipate them and so our concerns will continue to be undertakings of public utility.

Severn Valley Gas Corporation

The Eighth Ordinary General Meeting of the Severn Valley Gas Corporation, Ltd., was held on May 26 at the offices of the Gloucester Gas Light Company, Gloucester.

The following statement by the Chairman, Major Julian Day, M.C., was circulated with the report and accounts for the year ended March 31, 1942:

Through the death of its Deputy-Chairman, Mr. S. G. Wood, in the early days of April, the Corporation has sustained a grievous loss. He was held in the highest esteem throughout the Gas Industry as well as by his colleagues and by the large number of stockholders who were privileged to know him. Mr. Wood, who became Chairman of the Cheltenham Gas Company in 1928, played an important part in the formation of the Corporation and in every phase of its subsequent activities. He will be greatly missed.

Dividends Maintained

The accounts which are before you show that the Corporation has passed through another satisfactory financial year. The changes in the balance sheet are small and call for no special comment on my part. The revenue account shows an increase of £3,149 in gross revenue, but income tax requires £7,962 more than was needed for the previous year. As shown in the Directors' Report, after providing for the dividends recommended, which are at the rate of 5½% per annum, less tax, for the Ordinary, and 6% per annum, less tax, for the Deferred stock, being at the same rates as paid for the past four years, the amount to be carried forward is increased by £1,799 to £16,007.

Two subsidiary companies operated at a loss. In one case this loss was provided for out of the funds of the subsidiary, and provision has been made in these accounts in respect of the other. In the aggregate the profits of the subsidiaries available for distribution exceed the amount paid in dividends.

Advantages of Co-operation

The normal business of gas undertakings is not subject to violent fluctuations, but under war conditions gas-works may be called upon suddenly to deal with problems of supply which could not have been foreseen. Where close co-operation has already been established between a number of undertakings operating in the same area, as in the case of this Corporation and some other holding companies, the task of surmounting the difficulties in lightened, and it is possible also to maintain greater financial stability.

I may mention that a number of our companies are now interconnected by supply mains, thus establishing miniature grids, and this has proved of inestimable value in maintaining throughout the group an almost uninterrupted service. That this has been accomplished with such very few periods of overstrain has been due to the ability of our Managing Director and his head office staff, as well as to the untiring efforts of the Managers, staff, and employees of the constituent companies. On behalf of the Directors and all the stockholders I convey to them a message of our appreciation of their consistent and unfailing efforts.

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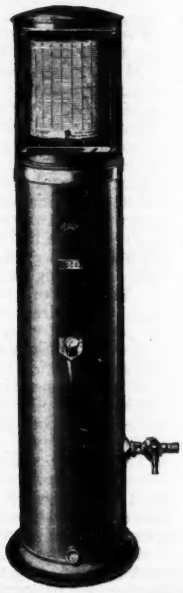

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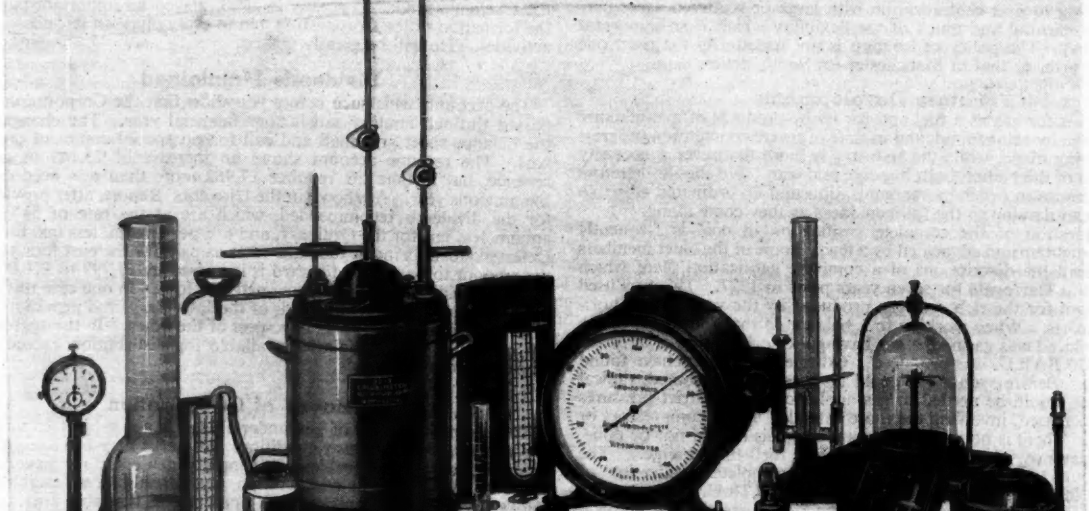

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PRODUCER GAS FOR ROAD TRANSPORT

(*Continued from p. 289*)

(6) *Moisture.*—Producer systems employing fabric filters call for a low-moisture content in the fuel so that specially dried fuels must be used. This special drying is expensive, and calls for careful handling of the fuel to prevent increase in moisture content.

Systems employing wet washers can use fuels which have not undergone any special drying process, providing the surface moisture is not sufficiently high to interfere with the movement of the fuel in the hopper. Such moisture helps to enrich the gas at the beginning of a run. Up to 5 or 6% surface moisture is unlikely to cause trouble. Nevertheless, surface moisture is not fuel, and fuel contracts should contain a clause penalizing suppliers when the surface water exceeds an agreed proportion.

(7) *Bulk Density.*—The bulk density of the fuel controls the weight which may be charged to the hopper, and hence the mileage per hopper charge. Of the fuels available, anthracite is easily the best in this respect with a bulk density exceeding that of any of the carbonized fuels. Typical bulk density figures are:

Anthracite	45–50 lb. per cu.ft.
Low-temperature coke C	33–36 lb. „ „
Low-temperature coke B	20–26 lb „ „
Charcoal	11–14 lb. „ „

The lower the density of the fuel, the larger the sizes of the particles which will be carried in the raw gas for any given rate of gas flow.

Obviously, from the point of view of pay load of commercial vehicles, mileage capacity per hopper charge, load on dust-catchers and weight-capacity of fuel-transport containers, high bulk-density fuels are preferable.

(8) *Toughness and Resistance to Abrasion.*—A dusty fuel not only causes extra work for the gas-cleaning plant, but may also affect adversely the passage of the gas through the producer and cause unduly high resistance to gas flow, loss of flexibility, &c. If the fuel is easily abradable or not resistant to shatter, the size and size range will deteriorate during transport and handling.

(9) *Uniformity.*—Uniformity is a desirable attribute in a producer fuel as in other fuels, but nevertheless is an attribute frequently disregarded. Uniformity is desirable not only in size range, but also in moisture content, ash content, volatile content, potential tar yield, reactivity, &c., otherwise the fuel will give variable results and irregular response to engine demands, and the driver will lose confidence in the fuel or even in producers in general.

Properly prepared anthracite from a given source will be sufficiently uniform in properties and size, so also will be many of the carbonized fuels which have been used. But some low-temperature carbonization processes yield a semi-coke in which the coke at the centre of the retort has a volatile content of some 3 or 4% higher than the skin coke formed at the oven walls. In such a case the coke from near the centre of the carbonizing chamber may have a potential tar content well above the danger limit although a through-and-through average sample may give a satisfactory result on laboratory examination. If such centre-coke becomes segregated from the skin-coke, there is a possibility that it may cause tar troubles in the producer-gas system. Care must be taken, then, in the preparation of fuels to ensure uniformity.

(10) *Availability.*—Fuel for use in portable gas-producers should be readily available, so that stocks replenished *en route* have the same properties wherever obtained. This presupposes a widespread and controlled fuel-distributing organization, with arrangements for filling-stations at convenient intervals for commercial road transport. Passenger transport services do not have to rely on such filling-stations and merely need ensured regular supplies to garages or depots

Summarizing.—A highly reactive dust-free fuel of suitable size is required to give easy lighting, good performance, and desirable flexibility; the fuel must not be tar-forming; it should be relatively low in ash, sulphur, nitrogen, and chlorine; it should be resistant to shatter and abrasion; the ash should not give rise to clinker troubles; it should have a high bulk density, and should be uniform in properties throughout a consignment. It must be readily available.

General.—Of the fuels at present available suitably sized activated anthracite is outstandingly the best for general use.

Low-temperature cokes are not always so uniform in properties as anthracite; their greatest disadvantage is low bulk density. They are, usually, very reactive and give good performance, except in cases where the ash characteristics are undesirable and lead to clinker troubles. The gas yielded usually has a calorific value lower than that yielded by anthracite under similar conditions.

Activated gas coke is similar to low-temperature coke in many respects, and, like low-temperature coke, frequently has an ash content exceeding that of good anthracite. It yields a gas of lower calorific value than low-temperature coke, due primarily to the lower content of volatile matter. The calorific value of the gas can be increased by the use of a wet-blast, but this may introduce complications in producer design if wet-blast is to be employed satisfactorily at all loads.

The Present Position

Few reliable data concerning the conversion of commercial heavy vehicles have been made available to the general road user, and the conflicting reports of oioneer operators, coupled with the initial attitude of the Government, have, no doubt, been largely instrumental in the general lack of enthusiasm shown for producer-gas vehicles. One intention of this Paper is to make clear that it is possible to run heavy vehicles economically and satisfactorily on producer gas.

The costs of conversion and installation are quoted at prices varying up to £220. This cost may have acted as a deterrent in some cases, but, in an emergency, a cost of this nature is immaterial, except for small concerns, especially as fuel costs are less than when petrol is used. The saving in fuel costs has been shown to be about 1d. per mile (compared with petrol) for passenger service vehicles. For a yearly mileage of 24,000 miles the saving amounts to £100, and shows a good return on capital expenditure.

No recent figure has been published for the number of producer vehicles now in operation, but it is certainly far short of 10,000. The fuels available, or potentially available, include anthracite, low-temperature coke, activated high-temperature coke, and suitably carbonized semi-bituminous coals. The relative suitability of different fuels has been discussed. A large-scale conversion of vehicles to producer-gas propulsion might call for crushing of larger sizes of suitable fuels with consequent production of fines. Such fines might normally present a problem in disposal and utilization, but they can be briquetted with a suitable binder and then carbonized to yield a suitable fuel for producers.

There is no doubt that arrangements can be made for availability of adequate supplies of fuel for a large number of vehicles by careful planning and by co-ordinated application of the country's fuel and energy resources. It has been suggested that the problem would be eased by the development of a producer which can use fuels rather more "tarry" than those required in existing producer types, but there is no time to wait for development of new types which present problems for a longer term of research than can be envisaged at present.

Some potential operators of producer-gas vehicles were deterred by the sudden increase in price of suitable fuels which occurred about the beginning of 1940—just when road service operators needed but slight encouragement to undertake widespread trials. Towards the end of 1939 the price of suitable anthracite was 52s. 6d. per ton on wagons at the colliery. Since then the price has risen to 90s. per ton delivered, for lots of not less than one wagon, plus an extra charge of 7s. 6d. for specially dried fuels. The arrangement by means of which there is a uniform price throughout the country is a step in the right direction, but 90s. per ton does seem a rather high price, and a charge of 7s. 6d. per ton for drying is certainly high. But even at these prices a saving in fuel cost can be shown with anthracite when compared with petrol.

It might be well if the Government imposed a restriction on the price of producer fuel; such a restriction would remove the fear of soaring fuel costs which has acted as a deterrent in wider adoption of gas-producers. Further guarantees not to imposed taxation on producer fuels would also help towards a change-over from petrol to producer gas.

Immediate Conversion

The portable gas-producer unit has passed out of its initial experimental stages, and producer gas can now be regarded as a satisfactory substitute for imported motor fuels for certain classes of vehicles. The stage has certainly been reached where it is possible to recommend that a much larger number of vehicles should be converted to use producer gas with a saving of a considerable amount of liquid motor fuels. The 21 vehicles of the Maldon and Cromer depots, mentioned earlier in the Paper, save between them 78,500 gallons of petrol a year. Each thousand such vehicles converted will save about 4,000,000 gallons of petrol a year and utilize about 20,000 tons of home-produced solid fuel.

It is submitted that the following types of vehicle are particularly suitable for conversion:

(1) Passenger service vehicles, especially those operating on country services.

(2) Medium-distance goods vehicles, especially of 3–4 litres capacity.

(3) Municipal services vehicles as used, for example, for refuse collection.

As the result of the experience gained from extensive bench and road tests and from over a million miles service operation, it is possible to make with confidence certain recommendations connected with the conversion of such vehicles and the design of the plant required. These recommendations include:

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Gas Products Prices

The London Market May 25.

There are no changes to report in the prices of Coal Tar Products in the London Market.

The Provinces May 25.

The average prices of gas-works products during the week were: Pitch and Crude Tar,* Toluole, naked, North, 90's, 1s. 10d., pure, 2s. 5d. (controlled by the Control of Toluene No. 2 Order, July 3, 1941, which fixes the maximum price at which this material may be sold). Coal tar, crude naphtha, in bulk, North, 1s. to 1s. 4d. according to quality. Solvent naphtha, naked, North, 2s. 2d. to 2s. 6d. Heavy naphtha, North, 1s. 10d. to 1s. 11d. Carbolic acid, 60's, controlled by the Coal Tar Acids Prices (Inland) Order, 1942, operative from May 1. Naphthalene, controlled by the Naphthalene prices (Inland) Order, 1942, dated April 15, 1942, and operative from May 1, 1942, £19 to £19 10s.—bags free. Anthracene, controlled by the Anthracene Prices (Inland) Order, 1942, operative from May 1. Filtered heavy oil (min. gr. 1,080), 7½d. to 8d.

*In regard to pitch and crude tar prices we would ask readers to refer to the editorial note on p. 396 of the "JOURNAL" for Sept. 10, 1941.

Tar Products in Scotland May 23.

No change to record. Refined tar controlled. Value about 4½d. per gallon *ex* Works, naked. Creosote oil: Specification oil, 6¼d. to 6½d. per gallon; low gravity, 7d. to 7½d. per gallon; neutral oil, 6½d. to 6¾d. per gallon; all *ex* Works in bulk. Cresylic acid is in good call at controlled prices of 3s. 6d. to 5s. per gallon, *ex* Works, naked. Crude naphtha 6½d. to 7d. Solvent naphtha: 90/160 grade, 2s. to 2s. 3d. per gallon and 90/190 Heavy Naphtha, 1s. 9d. to 2s. per gallon. Pyridine: 90/160 grade, 13s. per gallon and 90/140 grade, 15s. per gallon.

Gas Stocks and Shares

The tone on the Stock Exchange was more cheerful in most sections last week, but the increase in general business continued small. The Gas Market was an exception, and although the amount of stock available was a trifle less than the previous week, there was no dearth of enquiries. It will be noticed that all price changes were in an upward direction. Gas Light units recovered the small drop of a fortnight ago, changing hands up to 13s. 4½d., while Imperial Continental followed up last week's gain of 2 with a similar rise. Here and there recorded prices would appear to justify a marking up of quotations.

It is regretted that owing to an error in the Official Supplementary List, the "A" Consolidated stock of the Mid-Southern Utility Company was reported in the "JOURNAL" of May 13 as having dropped 10 points to 50–60. In actual fact, this stock was marked up 10 points, the quotation being 70–80.

The following price changes occurred during the week:

OFFICIAL LIST

Bombay (*x.d.*)	17/6—19/6		May 18
Cardiff	100—105	+3	
Croydon Sliding Scale	95—100	+2	
Gas Light Units	12/3—13/3	+-/3d.	
Ditto 3 p.c. Deb.	83—86	+½	
Imperial Continental Ord.	52—57	+2	
Montevideo	73—78	+3	
South Suburban 5 p.c. Pref.	92—97	+1	
United Kingdom 4½ p.c. Pref. (*x.d.*)	16/—18/-		May 18
Ditto 4½ p.c. Red. Pref. (*x.d.*)	15/6—17/6		"

PROVINCIAL EXCHANGE

Sheffield 4 p.c. Deb.	98—101	+1

B.C.G.A. Activities

A report based on the evidence submitted by the Salesmen's Circles has been presented to The Institution of Gas Engineers on the question of standardization of appliances.

The Northern Command Kinema Officer gives high praise to the B.C.G.A. films which have been shown to the troops during the past year, generally in conjunction with military training and educational films.

The M.O.I. will be showing "Housing Problems" at the New World Order Exhibition at Portrush, N. Ireland, in August.

A new film in development of the Association's propaganda for war needs is under consideration dealing with a variety of wartime problems affecting national life.

Poplar's women's own ideas on kitchen planning are the basis of the display the Studio is designing for the Women's Gas Council's stand at the Planning and Housing Exhibition organized by the Housing Centre, which opens at the R.I.B.A. headquarters on May 28. The display will incorporate photographs of some of these housewives and of blitzed Poplar homes and an isometric drawing of a kitchen will illustrate their ideas. A number of Poplar women will be on the stand during the run of the Exhibition to discuss views on planning with visitors.

The Studio is working on meter-reading displays, showcards, posters, and demonstration dials, to encourage the public to learn how to read their gas meters in preparation for fuel rationing or a more intensified form of voluntary economy. A photo appeared in the *Daily Express* recently showing the giant set of dials displayed in one of the Gas Light & Coke Company's windows, which was produced by the studio. They have 56 sets already on show.

A series of display screens has been designed for the Ministry of Works and Buildings to help with their Scrap Metal Drive. The total length of these 3-fold screens is 8 ft. by 5 ft. high, and they incorporate 17 photographs illustrating all stages from the scrap dump to finished munitions of war. They are for display in gas showrooms in the area of the country which is receiving the Ministry's particular attention on the campaign.

The Ministry of Food has authorized the issue of special permits for quantities of rationed foods (in excess of the normal scale) per demonstration shown to be required for making the Ministry's Recipe of the Week. The Public Relations Division have been in touch with local Food Officers in the areas of the gas undertakings which have notified the B.C.G.A. that they will co-operate in publicizing the Recipe of the Week. If undertakings which find they have any difficulty in obtaining the food required will get into touch with the B.C.G.A. the matter will be taken up with the Ministry of Food.

Many undertakings have reported that the Recipe of the Week scheme is creating great interest, and results in good write-ups in local papers. It is suggested that members who have not done so should invite a reporter to one of the demonstrations.

It is appreciated at the B.C.G.A. that many gas undertakings' demonstrators have been appointed to important war work, such as canteen supervisors. Undertakings which have lost the services of their demonstrators for the duration of the war have arranged other methods for demonstrations at their showrooms. For instance, one undertaking is using a member of the W.V.S. on one afternoon a week; another has the services of a teacher supplied by the local education authority on one afternoon a week; others are using housewives, members of the Women's Gas Council, and showroom staff. The Ministry's recipe is simple, carries complete instructions for making it, and in future will have notes added for the use of the woman demonstrating the recipe.

Annual meetings of members have recently been held in the Eastern District at Cambridge on April 29, in Scotland at Edinburgh on May 13, and the Yorkshire District at Leeds on May 14.

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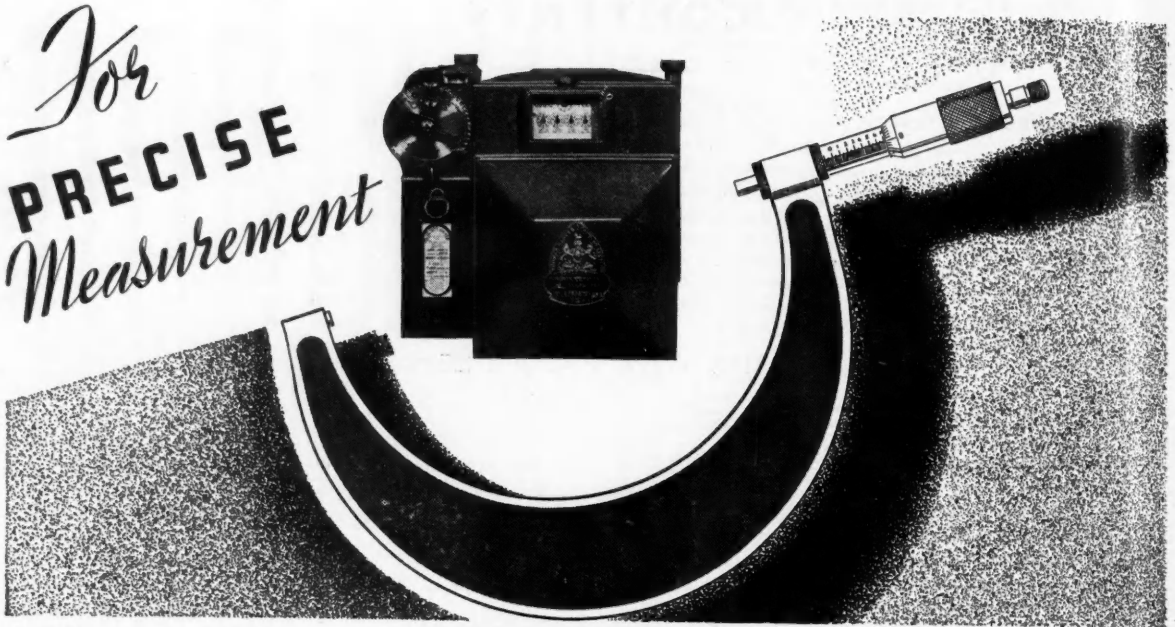

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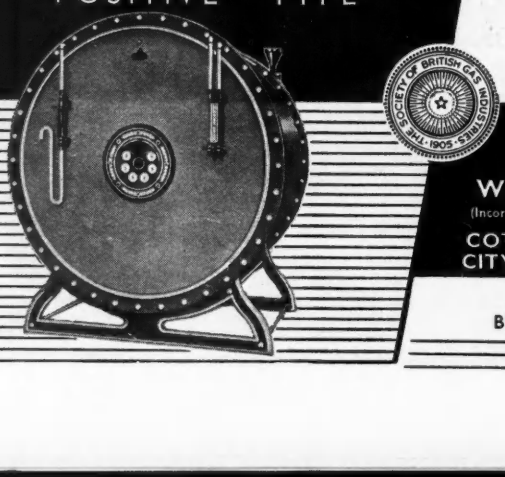

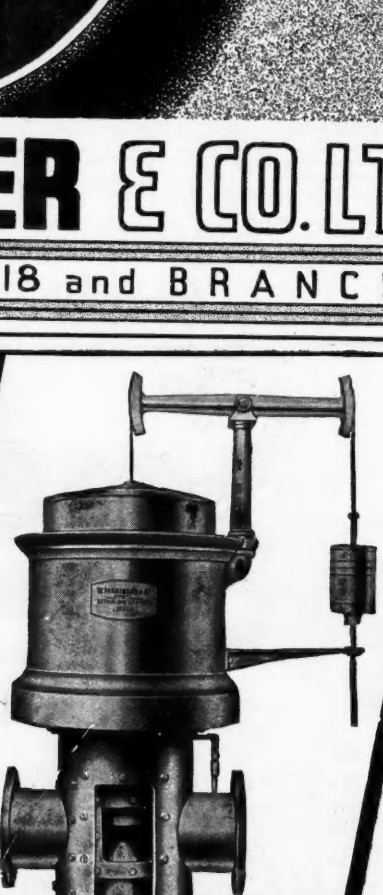

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